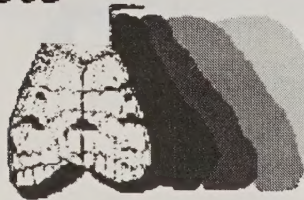


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# ***Gypsy Moth News***

July 1996

Issue Number 41

**Some places get sprayed--  
others get the bug.**

## **Treatment Priority**

Given limited funds, a priority should be assigned for which type of areas are sprayed, if at all. Land use is a big factor.

## **Treatment Threshold**

The mere presence of gypsy moth does not normally qualify an area for treatment within the generally infested Northeast United States. A population density must be established above which treatment is recommended. This threshold is usually associated with project objectives and land use.

## **Project Objectives**

Preventing damage, minimizing nuisance, or slowing the spread are common objectives of a suppression program. In an eradication program, eliminating the insect is the objective.





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## Editor's View



Getting a sense of what is treated and why! Gypsy moth suppression is the act of reducing the insect population to a nondamaging level. How this is implemented varies from project to project and is reflected within the treatment guidelines and priorities within this issue. There are some popular misconceptions about gypsy moth suppression. As an example, many people think gypsy moth suppression is directed solely at protecting a timber

resource. Wrong! Most State projects give higher treatment priority to where people live, i.e., forested residential areas, which means the nuisance and aesthetic affects of gypsy moth are more important than protecting a timber resource (note that most gypsy moth projects are conducted by State departments of Agriculture and not Forestry). Also, many people think gypsy moth suppression will eliminate the gypsy moth. Wrong! Within the generally infested area, project objectives merely stipulate reducing populations to nondamaging levels. In addition, most projects require fairly high gypsy moth population densities to be present before treatment is considered.

Within these pages you can develop a sense of how an area might become included within a State- or Federally-run gypsy moth suppression project. More complete information describing these guidelines for participation can be obtained by contacting the State agencies involved. If you are interested, let us know.

Many people contacted us about inclusion within the Directory of Expertise published in the last issue. The Directory is being updated on the Internet and a new, updated version will be published (hard copy) in late 1996.

A handwritten signature in dark ink, appearing to read "D. B. Twardus".

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## Letters to the Editor

R.H. from Asheville, NC, asks:

**"I would like any information you will have on gypsy moth and its invasion into North Carolina."**

Daniel T. Wall, NC Department of Agriculture, responds:

*The area under federal quarantine in North Carolina has remained the same for quite some time. It presently includes Currituck County and the northern part of Dare County. Both counties are in the northeast corner of the state. Since the dominant species in this area is pine, the movement of the gypsy moth population has been limited.*

*The data collected from the statewide trapping program and from the Slow-the-Spread pilot program with the U.S. Forest Service appears to indicate a trend toward higher moth catches in the northern portion of the state. This is particularly true in the Piedmont region. A blanketing of low level moth catches extended approximately 25 miles from the NC/VA border in parts of this area in 1995. Although trap catches are higher, surveys have located only one reproducing population near the town of Eden.*

*In 1995, five spot infestations were treated aerially in the mountains of North Carolina; three in the northern mountains and two in the southern portion. Only one treatment in the mountains is proposed for 1996.*

*An introduction of the Asian gypsy moth occurred south of Wilmington in July of 1993 that began a three year eradication project. Over 140,000 acres were treated in 1994 in response to this introduction. There are only 1,500 acres proposed for treatment in 1996 for the Asian strain. It is hoped this will be the last year for treatments under this project.*

*To summarize, there seems to be a trend of higher moth catches over the Northern Piedmont region of the state. The Piedmont and Mountain regions of the state are at a greater risk for the movement of the gypsy moth because of the more favorable tree species that dominate these areas. Man-assisted movement of the gypsy moth is still the main factor for new introductions of the moth.*

Ray S. Williams of Oak Ridge National Laboratory, wrote to say:

I was very pleased to find the Gypsy Moth News after a search through numerous web pages on gypsy moth. As a brief introduction, I have been conducting research investigating how tree species grown under a climate change scenario of elevated atmospheric CO<sub>2</sub> may alter important plant-insect interaction through the indirect effects CO<sub>2</sub> enrichment has on leaf phytochemistry. As part of my doctoral dissertation work at the University of South Carolina, I used a white oak-gypsy moth system to see how plant CO<sub>2</sub> growth conditions might impact the developmental rate and fecundity (pupal weight) of the gypsy moth. The results proved interesting. In spite of rather large reductions in leaf nitrogen and increases in leaf non-structural carbohydrates and carbohydrate:nitrogen ratios in oak leaves grown under CO<sub>2</sub> enrichment, gypsy moth larvae reached pupation at very similar times for both males and females, with no statistically significant differences in pupal weight observed (it should be noted that female pupal weight was reduced 14 percent in those insects fed leaves grown at double ambient CO<sub>2</sub> for the entire larval life cycle). A concurrent study found that early instar larvae grow more poorly on enriched CO<sub>2</sub> grown foliage while later instar larvae do not. There was also evidence for an increase in food consumption when larvae were fed enriched CO<sub>2</sub> grown leaves. I am finishing the leaf secondary metabolite assays at present and hope to submit this work for publication this summer.

At the present time I am continuing my research at Oak Ridge National Laboratory, where red maple is being grown in open-topped chambers under both elevated temperature and CO<sub>2</sub>. Once again, I plan to use gypsy moth as a model. Insects are obtained from Otis Methods Development Center from the sterile male release program to allow for its importation into Tennessee. If this work sounds interesting and you feel the readers of your newsletter would like more details, I would be most happy to provide them. I have enjoyed working with gypsy moth since my days with FPM in Asheville, NC, when I worked for John Ghent.

Again, I am glad to have found your pub and look forward to future issues.



J.D.B., Service Forester, Moorefield, WV, asks:

**“What are the possibilities of vectoring *Entomophaga maimaiga* via host soil well ahead of the leading edge at least in a “small” area to test the effectiveness of this in stopping defoliating numbers from developing? Would some *Lymantria dispar* have to be present as well?”**

Allen Baumgard, Ohio Department of Agriculture, responds:

*Gypsy moth is relatively new to Ohio and E. maimaiga is not widespread. With this in mind, a researcher from the California University of Pennsylvania, Dr. Barry Hunter, proposed inoculating areas to see if we could establish E. maimaiga and use it to help manage gypsy moth populations. The project began in 1993 by inoculating sites having low level gypsy moth populations. The first year of the project, we inoculated seven sites throughout our generally infested area in northeastern Ohio. That same year we found two naturally occurring sites of E. maimaiga along the Pennsylvania border. The success rates of the inoculated sites have been variable. In the successful sites, Dr. Hunter is seeing a spread of about 1 km per year.*

*Recently, our focus has changed to do precisely what you were thinking, since we proved that E. maimaiga could be established in Ohio. Dr. Hunter's work is now at the southern portion of Ohio's leading edge in low ( $\leq 250$  egg masses per acre) populations. It will take a few years for the populations of gypsy moth in these areas to expand and for us to see if we do get protection from defoliation.*

*We continue monitoring the earlier inoculation sites as well as looking for naturally occurring sites and spread. As of 1995, we still didn't have widespread cases of E. maimaiga devastating gypsy moth populations as do some other States in the East. We have had a very wet spring in 1996 and hope to see some significant activity from the fungus.*

*To answer the last part of your question, host range studies have shown that E. maimaiga does not infect insects other than lepidoptera. We do know that in addition to the Lymantriidae (tussock moths) members of families, Notodontidae, Arctiidae, and Noctuidae are susceptible to infestation. The fungus is reported to survive up to 2 years, after that, it is questionable.*

Eric E. Noeldechen, from S. Western Ontario, writes via e-mail:

**“I live in S. Western Ontario, about 30 minutes from Detroit. We have I'd say in total acres maybe from 500-1000 acres infested with GM. They are everywhere.**

**We noticed them three years ago, but nobody knew what they were. Then last year the population exploded, and again this year it's even worse.**

**I don't have to tell you what kind of damage they do, it's unreal. We have had [local officials] out to look around, and they say it's not that big of a problem. We think that it is, and we are afraid that some of our older oaks are going to become firewood at some point, because of it.**

**We took some action this year and did some aerial spraying, with BT, but not everyone participated in the spray, and I myself think that the spraying is useless if the entire area isn't sprayed. There are to be two applications, by helicopter, with a two week interval. Is this the proper way to spray for these ?**

**I have a few questions if you don't mind !!!**

- 1. Are they here to stay?**
- 2. What other forms of eradication can we use? i.e. trapping, barriers, introduction of natural enemies.**
- 3. Will they eventually go away, or die off?**

**They seem to be a rather isolated case, localized to a general area, but they are spreading by means of RV, borrowing of people's implements, things of this nature. Someone loaned a farm tool to someone else, and now they are in an area which they weren't before.**

**I make my living from maple trees, so I have a vested interest in whats going on here, not only that but we are also losing trees that are a hundred years old.**

**HELP!!!!!!!**

**Thanks for any help in advance !!!**

**Eric E. Noeldechen  
Gypsy Moths - The Zebra Mussels of the Land!!**

**BTW.. If you are interested in some pictures I'll see if I can scare some up, scan them and send'm off to you.”**

Mr. Noeldechen's e-mail message was forwarded to John Cunningham in Ontario for a reply. Here's what John had to say:

*Regarding Mr. Eric E. Noeldechen's enquiry, I consulted with Dr. G.M. Howse who is Head of the Ontario Forest Insect and Disease Survey. Gord phoned Mr. Noeldechen last evening (June 19) and found that one of his business ventures was bronzing maple leaves. In reply to Mr. Noeldechen's questions:*



1. The gypsy moth population in your area will probably collapse this year due to diseases (virus or fungus) and parasitic insects. Although populations throughout the province are currently low, gypsy moth is here to stay in Ontario with outbreak cycles probably occurring about every 6 years or so.

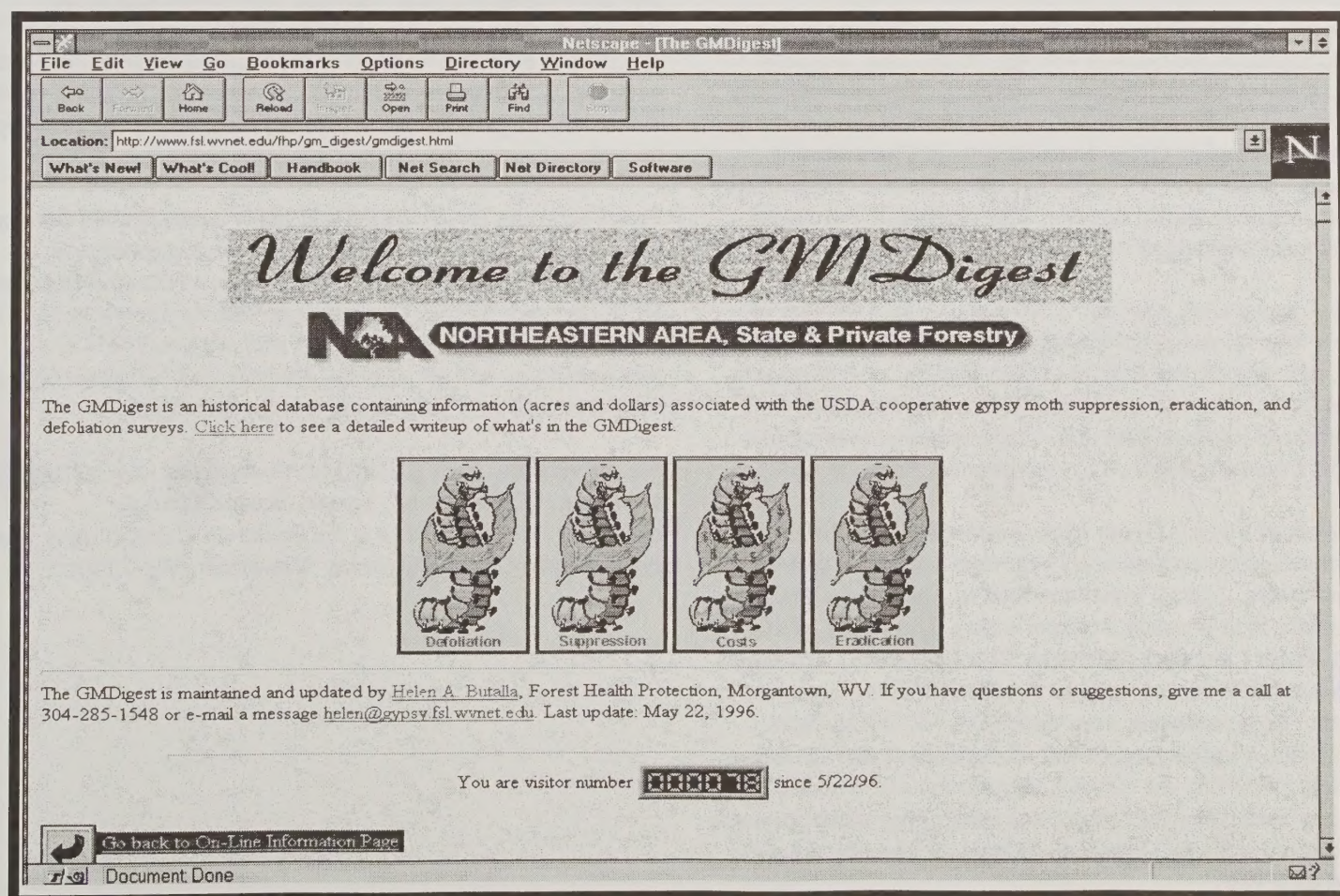
2. B.t. is the only registered control option other than the chemical pesticide, carbaryl. Trapping is not practical if you are looking at 500 to 1,000 acres. A B.t. application should protect foliage in the treated area if applied before there is obvious defoliation. Two weeks seems rather long between two applications of B.t. and 3 to 7 days is more usual. However, the applicator is probably well aware of local conditions and knows what he is doing. It is best if the whole infestation is treated, but your trees will be protected and your neighbour's may be defoliated.

3. Ontario is the northern limit of the North American gypsy moth infestation and outbreaks are relatively short. Some years there is heavy egg mortality in egg masses above the snow line. There is normally only one year of severe defoliation before population collapse, but there are always exceptions and we would certainly not want to make a definitive prediction in your case. However, egg masses in your area are small and the prognosis is an imminent gypsy moth population collapse.

Dr. John C. Cunningham  
Research Scientist  
Canadian Forest Service  
Sault Ste. Marie, Ontario.

## GMDigest

If you have access to the internet, you can access the GMDigest and retrieve up-to-date gypsy moth suppression acreages, suppression costs, eradication acreages, and defoliation acreages. See figure below for the exact location.





## THE ASSOCIATION OF VIRGINIA GYPSY MOTH MANAGERS: A Success Story in the Making

by Brenda Diehl

"Recognizing the impact of gypsy moth on the people and natural resources of Virginia, we, the local government representatives of gypsy moth programs, resolve together to exchange information, expertise, ideas, and when appropriate, resources, in a mutual effort to manage this introduced pest." So reads the statement of purpose of the Association of Virginia Gypsy Moth Managers (AVGMM). Begun in 1989 from a meeting of about 100 Local Program Managers, Extension Agents, and interested others who had convened to discuss their concerns and ideas about gypsy moth programs, AVGMM hit the ground running and hasn't slowed. Assisted by professional facilitators from Virginia Tech, the group formulated goals and objectives on that August afternoon which set them on a course for the future.

The first order of business was to develop a set of bylaws under which the organization could operate. Next a membership drive, aimed particularly at local program managers, pulled together both the Virginia Cooperative Suppression Program and Appalachian Integrated Pest Management (AIPM) Coordinators. Although the group was diverse in their approaches to gypsy moth management, their perceived needs for good information, educational materials, and general support were similar.

The focus during AVGMM's infancy was on helping standardize job descriptions and increase salaries. In addition, a special committee worked to formulate a central library of educational and informational materials. In 1990, AVGMM co-sponsored the Annual Virginia Gypsy Moth Review in Charlottesville, Virginia. Since then, AVGMM has taken the sole responsibility for orchestrating annual reviews. Participation in the annual conferences has ranged from 65 to 130 people.

Annual gypsy moth meetings in Virginia attract a number of people who are restrained from going to conferences outside the state, either due to the policies of their locality, or reduction in travel funds. The reviews also offer recertification credits for Commercial Pesticide Licenses. These recertification credits usually become recognized by several other states, as well.

The Annual Virginia Gypsy Moth Review has been fortunate to obtain excellent speakers every year from across the eastern United States. Special presenters such as Ann Hajek, Ted Andreadis, Ron Weseloh, Michael Raupp (University of Maryland), Roger Lintemuth (Michigan State University), and others are brought in from time to time to address topics of special interest. Representatives from the USDA-FS, USDA-ARS, USDI-NPS, Virginia Department of Agriculture and Consumer Services (VDACS), the Virginia Department of Forestry (VDF), Virginia Tech, Slow the Spread, and local gypsy moth programs are featured annually. Proceedings from the meeting are published each year.

In addition to this annual conference, AVGMM has sponsored special training workshops like Egg Mass Surveying Techniques, and Aerial Observer Training. Participants in the Aerial Observer Workshop actually received training in the airplane while flying over simulated spray block corners. They were given a rating by the instructors based on their ability to read the maps and find the balloons.

AVGMM filled a need in local programs for educational activity ideas with the publication of *Mother Trouvelot's Tried and True Gypsy Moth Activities* in 1993. This effort was expanded in 1994 and 1995 with the release of *Mother Trouvelot II, Much To Do About Gypsy Moth*, and the *Gypsy Moth Lifecycle Card Game*. This year AVGMM made two of Professor Michael Raupp's Landscape IPM books available to conference attendees at cost.

Last summer, in response to the clause in our Purpose Statement about sharing information, a survey of local program managers was conducted. The survey looked at what specific materials were being given to the public in several categories (i.e., pesticide information, toxicology, lifecycle identification, IPM, etc.). Persons responding to the survey made suggestions about what they are lacking and what materials they would like to see developed. Currently, AVGMM is in discussion about future educational initiatives with all of the state departments associated with gypsy moth management (i.e., Agriculture, Forestry, Health, Education, Virginia Tech). Hopefully, this will be the first step towards enhancing information available to the public.

Future activities for AVGMM will likely center around developing programs and materials based upon the suggestions of members in the recent survey. We are also in the planning phase for the Seventh Annual Virginia Gypsy Moth Review to be held at the Mimslyn Inn in Luray, VA, February 4-6, 1997. Come join us and you will see why the Association of Virginia Gypsy Moth Managers is a success story in the making.

For information about AVGMM or to receive a copy of their newsletter, "The Blow-in", contact Brenda Diehl at [ex069@vtvm1.cc.vt.edu](mailto:ex069@vtvm1.cc.vt.edu) or at the Frederick County Gypsy Moth Program, 20 N. Loudoun Street, Winchester, VA 22601.



**Treatment Objectives and Priorities  
for  
Cooperative, Other Federal, and National Forest  
Gypsy Moth Suppression Programs\***

compiled by

Amy Onken, Daniel Twardus, and Deb Allen-Reid

Gypsy moth treatment objectives and priorities are as varied as the customers and landscapes our programs serve. Egg mass density thresholds for treatment have always stirred controversy, partially because egg mass surveys are an imperfect predictor of caterpillar density, and partially because there will always be those who want treatment, but who do not qualify under whatever guidelines are being used.

A treatment threshold of 250 egg masses per acre is the lowest used for suppression activities. In a forest situation, this population level will not cause noticeable defoliation. However, this threshold may be used along the newly infested edge of the gypsy moth's range to slow its advancement into uninfested areas. Another application of the 250 egg masses per acre threshold is within certain areas of the generally infested region of the East where caterpillar feeding interferes with recreational activities or property values and nuisance reduction is the treatment objective. Higher thresholds are used as the value of the individual tree, away from human activity, diminishes. In addition to egg mass density, field survey personnel note clues to population health such as egg mass size and evidence of the gypsy moth virus or fungus which could influence the decision to treat.

As Federal funding becomes tighter, thresholds and priority are receiving increased scrutiny. Both political and biological considerations will shape the programs of the future, as they have the past.

The next few pages of this issue summarize individual State Cooperative, Other Federal and National Forest Gypsy Moth Suppression treatment objectives and priorities.

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\*Compiled from Environmental Analysis reports, Project literature, and personal communications with Project Managers.



## Pennsylvania Bureau of Forestry

Treatment Priorities	Area	Description of Area
1	Forested Residential	<p>Single homes located within a wooded area (generally 1 dwelling/25 acres)</p> <p>Widely spaced homes, with wooded buffers between homes (generally 2 to 10 dwellings/25 acres)</p> <p>Closely spaced homes with retained forest trees, landscaped trees, and small scattered forested areas (generally 10 to 25 dwellings/25 acres)</p> <p>Large contemporary development of homes, apartments and condominiums with retained forest trees, common recreation areas and small scattered forests (generally 25 to 40 or more family units/25 acres)</p>
2	Publicly-owned Forestland	High quality, well stocked oak sawtimber stands; regeneration and shelterwood cuts; picnic areas; trail shelters; historical sites; State-owned buildings; group-leased campsites; (i.e., seasonal homes); research areas; high-investment on high-value fauna or flora habitat sites and special management sites; species-of-special-concern sites; natural areas; low density recreational sites
3	Forested Recreational	Publicly-owned parks; picnic areas; campgrounds; high-density recreational sites; roadside rests
4	Forest Stewardship	Private forestlands which are enrolled in the Forest Stewardship Program
5	Forested Special-use (noncommercial)	Includes historic and natural sites, private nonprofit campgrounds and picnic groves, private hunting and fishing clubs (around clubhouse), publicly or university/college-owned experimental forests, and areas where sizeable public investments have already been made for reforestation or production of timber.

### Treatment Thresholds

#### Forested Residential, Public Recreation Areas, and Forested Special-use

Area has to be generally forested (50 percent or more of the surface area is covered by the tree crowns of trees 25+ feet in height), with at least 20 percent of the forest cover made up of tree species that are highly susceptible to gypsy moth damage.

Area must contain at least 250 medium to large healthy egg masses per acre or have an expectation that high numbers of wind blown caterpillars will invade the area.

#### Publicly Owned Forestland and Public Water Supplies

Area must generally have 500 egg masses per acre or in picnic areas, trail shelters, historical sites, Bureau of Forestry building and facility sites, and campsites, 250 egg masses per acre.

#### Forest Stewardship Lands

Area must have 500 egg masses per acre and the gypsy moth must pose a threat to the landowner's management objective.

### Project Objectives

Prevent defoliation from exceeding 30 percent on 80 percent or more of the moderately to highly favored host trees.

In areas treated with diflubenzuron, population reduction must be adequate to preclude the need for treatment the following season.



## Delaware Department of Agriculture

Treatment Priorities*	Area	Description of Area
1	Forested Residential Developments	<p>Consists of urban/suburban settings where the forest understory has in large part been removed.</p> <p>Susceptible trees exceed 50 percent of the tree canopy. Forest canopy cover exceeds 50 percent in all residential developments proposed for treatment with <i>Btk</i>.</p>
1	Rural Woodlots	<p>Fragmented forests surrounded by open farmland, roads, or wetlands.</p> <p>Canopy cover in rural woodlots exceeds 50 percent for <i>Btk</i> treatment areas and 75 percent for diflubenzuron treatment areas. Preferred hosts compose at least 50 percent of the forest canopy.</p>
1	Publicly owned Areas	<p>State Parks, State Wildlife Areas, State Forest Land and other state owned land.</p> <p>Canopy cover exceeds 50 percent for <i>Btk</i> treatment areas. Preferred hosts compose at least 50 percent of the canopy.</p>

### Treatment Thresholds

The woodlot or residential development contains an average of  $\geq 250$  egg masses per acre.

The area consists of  $\geq 50$  percent preferred hosts of the gypsy moth.

The wooded area has  $\geq 50$  percent forest canopy for Gypchek and *Btk* treatment blocks and  $\geq 75$  percent forest canopy for diflubenzuron treatment blocks.

Residential developments must have  $\geq 10$  acres of contiguous canopy cover and rural woodlots must have  $\geq 25$  acres of contiguous forest canopy.

### Project Objectives

To prevent more than 30 percent defoliation on 80 percent or more of the host trees within the proposed treatment areas.

In areas treated with diflubenzuron, to reduce gypsy moth populations to below 1,000 egg masses per acre.

\*Delaware does not have priorities for type of land use.



## Maryland Department of Agriculture

Parameter	Weight/Rating
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Three primary parameters are used to formulate an overall rating for each potential treatment site for the purpose of selection and final inclusion in the Gypsy Moth Cooperative Suppression Program. The three parameters and the relative weight given each are as follows:

	Weight
A. Land use value/human resident population density	40 percent
B. Gypsy moth population density	50 percent
C. Habitat susceptible to gypsy moth	10 percent

### Treatment Thresholds

- 100 - 149 egg masses per acre - lowest priority
- 250 - 499 egg masses per acre - low priority
- 500 - 999 egg masses per acre - moderate priority
- > 1,000 egg masses per acre - highest priority

	Rating
> 75 percent favored host trees	3
50 - 75 percent favored host trees, majority of remainder intermediately favored host trees	2
50 - 75 percent favored host trees, majority of remainder nonpreferred host tree	1

Areas having any of the following characteristics are generally not considered for treatment:

1. Less than 50 percent preferred host trees (based on a sample count of co-dominant trees in the site).
2. Less than 50 percent canopy.
3. No human habitation, use, or planned management.
4. Property owners requesting exclusion.
5. Size clearly less than 25 acres.
6. Any reason to preclude the use of a particular action or activity (i.e., pesticides or aircraft).

### Project Objectives

To prevent gypsy moth defoliation that can lead to weakening or death of affected trees.

To reduce gypsy moth populations to a level so that insecticide retreatment of the site will not be necessary for one or more years.

To utilize pest management techniques that will achieve the most efficient and effective results on a continuing basis with the time, material, and people resources available.



## New Jersey Department of Agriculture

Treatment Priorities	Area	Description of Area
1	Forested communities	10 homes/50 acres, defoliated once and expecting heavy defoliation
2	Public recreational areas	Municipal and county, defoliated once and expecting heavy defoliation
3	Forested communities	5 homes/50 acres, defoliated once and expecting heavy defoliation
4	Forested communities	10 homes/50 acres, or recreational areas not defoliated yet, but expecting heavy defoliation
5	Watershed areas	Defoliated once and expecting heavy defoliation
6	Uninhabited high value forests	Defoliated once and expecting heavy defoliation

### Treatment Thresholds

Average 500 egg masses per acre over proposed treatment area.

Average 25 percent forest cover.

Susceptible forest.

### Project Objectives

To prevent defoliation from exceeding 30 percent on 80 percent or more of the host trees in the treated area.

To reduce gypsy moth populations in treated areas such that retreatment the following year will not be necessary. Areas having post-treatment egg mass counts below 500 egg masses per acre will be considered to have been successfully treated.



## Ohio Department of Agriculture

Treatment Priorities	Area	Description of Area
1	Woodlots	Woodlots adjacent to commercial nurseries and/or Christmas tree farms
2	Special Use Sites	Parks and campgrounds
3	Residential shade trees	More than 5 residents/25 acres with 50 percent tree crown
4	Forested Residential	1-5 residents/25 acres
5	Forests	Uninhabited forested areas

**Treatment Thresholds**

250 - 750 egg masses per acre - Woodlots and special use sites.

750 - 1000 egg masses per acre - Residential shade trees and forested residential.

1000 - 2500 egg masses per acre - uninhabited forests.

≥ 50 percent of basal area in favorable species.

**Project Objectives**

Prevent defoliation of greater than 40 percent.

Reduce populations by 90 percent.

Prevent tree mortality.

Prevent nuisance.



## West Virginia Department of Agriculture

Treatment Priorities	Area	Description of Area
1	Forests	Uninhabited or sparsely inhabited continuous forested acres with a fair or better site quality ( $SI \geq 50$ )
2	Forested Residential	Includes communities, roadside strips, and 500-foot spray zones around threatened communities
3	Forested Recreational	Public park, picnic areas and roadside rests and non-profit organized camps
4	Forested Special Use	Historic and natural sites, valuable scenic areas and trails, commercial camp grounds, sporting clubs, resorts, golf clubs, and ski slopes (forested areas), buffers around reservoirs and endangered croplands, experimental forests, and areas for reforestation and protection of valuable trees

### Treatment Thresholds

50 contiguous acres

Contain 30 percent forest tree species that are susceptible to gypsy moth damage.

Generally have a minimum of 500 healthy (size of a quarter or larger) egg masses per acre, or a reasonable expectation of high numbers of windblown larvae; 250 egg masses per acre where nuisance is a factor.

### Project Objectives

Limit individual crown defoliation to 20 percent or less.

Reduce gypsy moth populations by at least 80 percent.



**Michigan Department of Agriculture**

<b>*Treatment Priorities</b>	<b>Area</b>	<b>Description of Area</b>
1	Residential	2 or more dwellings no more than 0.2 mi apart
2	Public Recreation	High use areas such as parks, picnic areas, campgrounds, groomed hiking trails, golf courses, etc.
3	Private Recreation	Privately owned parks, campgrounds, picnic areas, golf courses, etc.
4	Public Special Use	Historic sites, cemeteries, schools, single dwellings

\*Source from 1992 and 1993 Environmental Assessments for cooperative gypsy moth suppression program.

**Treatment Thresholds**

- > 300 egg masses per forested acre in healthy populations.
- > 500 egg masses per forested acre in declining populations.

**Project Objectives**

- Preserve 60 percent of full leaf complement of treated areas.
- Reduce the "nuisance factor" of gypsy moth caterpillar to significantly below the intolerable level.



## Virginia Department of Agriculture and Consumer Services

Treatment Priorities*	Area	Description of Area
1	Forested Recreational	Publicly-owned forested recreational areas. Includes forested lands and special use areas such as scenic areas along highways, waterways, natural areas and historic sites.
2	Forested Residential	Housing density of at least 1 house per 1 acre.
3	Forested Residential	Housing density of at least 1 house per 5 acres.
4	Forested Residential	Housing density of at least 1 house per 15 acres.
5	Uninhabited	Sparsely inhabited, uninhabited, underdeveloped forested areas. Housing density less than 1 house per 15 acres.

\*Source from 1996 guidelines for participation for Virginia cooperative gypsy moth suppression program.

### \*\*Treatment Thresholds

1	Forested Recreational	Must have at least 250 egg masses per acre to qualify for treatment.
2	Forested Residential (1 house per 1 acre)	Must have at least 250 egg masses per acre to qualify for treatment.
3	Forested Residential (1 house per 5 acres)	Must have at least 250 egg masses per acre to qualify for treatment.
4	Forested Residential (1 house per 15 acres)	Must have at least 500 egg masses per acre to qualify for treatment.
5	Uninhabited (less than 1 house per 15 acres)	Must have at least 750 egg masses per acre to qualify for treatment.

Spray blocks must meet definition of a susceptible forest. A susceptible forest is a wooded area that contains trees greater than 25 feet in height and 50 percent or more of the surface area, when viewed from above, is covered by the tree crowns of moderately or susceptible hardwood tree species.

Residential and other areas may qualify for treatment even if they do not contain trees directly around them provided they are within 200 feet of a susceptible forest (as designated above).

\*\*Source from 1996 guidelines for participation for Virginia cooperative gypsy moth suppression program

### \*\*\*Project Objectives

1. Prevent tree defoliation greater than 30 percent.
2. Reduce insect populations to reduce nuisance impact to landowners.

The project will be deemed successful if 70 percent foliage protection and gypsy moth population reduction to below treatment thresholds are achieved.

\*\*\*Source from 1996 Environmental Assessment for cooperative gypsy moth suppression program



## **Piscataway National Park and Blackwater National Wildlife Refuge**

### **Treatment Objectives**

#### **Piscataway National Park:**

Prevent excessive defoliation and tree mortality in natural areas used for dispersed recreation (hiking, bird watching, etc.).

#### **Blackwater National Wildlife Refuge:**

Protect critical habitat for the Federally listed Delmarva fox squirrel by preventing excessive defoliation, tree mortality, and mast failure.

### **Treatment Thresholds**

750 egg masses per acre.

### **Project Objectives**

Prevent tree defoliation in excess of 30 percent on at least 80 percent of the treatment area.

Reduce population densities below treatment thresholds (750 egg masses per acre).

## Monongahela National Forest

### Treatment Priorities

Areas defoliated the previous year.

Areas identified by District personnel having susceptible forest type.

Areas identified by District personnel having vulnerable residual oaks.

### Treatment Thresholds

250 egg masses per acre in developed recreational areas.

500 egg masses per acre in unique ecosystems, research areas, and areas of scientific or recreational purposes.

1,000+ egg masses per acre in timber sales and high quality sites.

### Project Objectives

Protect the forest canopy by preventing defoliation from reaching 30 percent.

Reduce gypsy moth populations to 250 egg masses per acre or less in treatment areas with developed recreation areas.

Reduce gypsy moth populations to 500 egg masses per acre or less in treatment areas with timber, wildlife, watershed, and dispersed recreational values and uses.



# Gypsy Moth Suppression/Eradication in the United States - 1996

	STATE	BT	DIMILIN	GYPCHEK	FLAKES	OTHER	ACRES PLANNED
<b>GYPSY MOTH SUPPRESSION</b>							
<b>COOPERATIVE LANDS</b>							
DELAWARE	DE	32428	4539	0	0	0	36967
MARYLAND	MD	24817	16289	0	0	0	41106
MICHIGAN	MI	83339	0	0	0	0	83339
NEW JERSEY AGRI.	NJ	20279	0	0	0	0	20279
NEW JERSEY FOR.	NJ	500	0	0	0	0	500
OHIO	OH	7340	14833	367	0	0	22540
PENNSYLVANIA	PA	24831	0	0	0	0	24831
VIRGINIA	VA	4300	10626	0	0	0	14926
WEST VIRGINIA	WV	3128	63401	55	0	0	66584
Subtotal for COOPERATIVE LANDS :		200962	109688	422	0	0	311072
<b>FISH &amp; WILDLIFE SERVICE LANDS</b>							
BLACKWATER NWR	MD	896	0	0	0	0	896
Subtotal for FISH & WILDLIFE SERVICE LANDS :		896	0	0	0	0	896
<b>NATIONAL FOREST LANDS</b>							
GEORGE WASHINGTON/JEFFERSON NF	V&W	2015	0	0	0	0	2015
Subtotal for NATIONAL FOREST LANDS :		2015	0	0	0	0	2015
<b>NATIONAL PARK SERVICE LANDS</b>							
PISCATAWAY NP	MD	0	0	92	0	0	92
SAGAMORE HILL NATIONAL HISTORIC SITE	NY	0	0	70	0	0	70
FREDER/SPOTSYLVANIA NBP	VA	200	0	0	0	0	200
Subtotal for NATIONAL PARK SERVICE LANDS :		200	0	162	0	0	362
Subtotal for GYPSY MOTH SUPPRESSION :		204073	109688	584	0	0	314345
<b>GYPSY MOTH ERADICATION</b>							
<b>COOPERATIVE LANDS</b>							
FANNIN COUNTY	GA	884	0	0	0	0	884
YANCEY COUNTY	NC	2032	0	0	0	0	2032
UNICOI AND CARTER COUNTIES	TN	0	0	0	252	0	252
PITTSYLVANIA COUNTY	VA	4795	0	0	0	0	4795
WISCONSIN	WI	28864	0	0	2172	0	31036
Subtotal for COOPERATIVE LANDS :		36575	0	0	2424	0	38999
Subtotal for GYPSY MOTH ERADICATION :		36575	0	0	2424	0	38999
<b>GYPSY MOTH SLOW THE SPREAD</b>							
<b>COOPERATIVE LANDS</b>							
NORTH CAROLINA	NC	0	0	0	1100	0	1100
ROANOKE ISLAND	NC	0	0	0	800	0	800
VIRGINIA	VA	6354	375	0	3915	0	10644
WEST VIRGINIA	WV	12461	853	0	3487	0	16801
Subtotal for COOPERATIVE LANDS :		18815	1228	0	9302	0	29345
<b>NATIONAL FOREST LANDS</b>							
GEORGE WASHINGTON/JEFFERSON NF	VW	119	0	0	3769	0	3888
Subtotal for NATIONAL FOREST LANDS :		119	0	0	3769	0	3888
Subtotal for GYPSY MOTH SLOW THE SPREAD :		18934	1228	0	13071	0	33233
Grand Total :		259582	110916	584	15495	0	386577

Note: All acres shown are subject to change upon final verification





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